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THE OHIO STATE UNIVERSITY
COLLEGE OF EDUCATION
GEORGE F. ARPS, *Dean*

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Educational Research Bulletin

SCHOOL COSTS IN A GROUP OF OHIO VILLAGES RANGING IN POPULATION FROM APPROXIMATELY ONE THOUSAND TO THREE THOUSAND

C. A. HUDSON
Fremont High School

A questionnaire was recently sent to about fifty village superintendents in various sections of Ohio for the purpose of comparing school costs, a most vital subject in this state today. Replies from eighteen villages were received and summarized, and the results are here reported. It is well to keep in mind the fact that the data recorded in the tables which follow were compiled by eighteen different persons since the information was obtained by questionnaire. The probability of error is, therefore, greater than it would have been had one person made all computations and reports.

The items recorded in Table I—school enumeration, average daily attendance, percent attendance is of population, and percent the high-school enrollment is of the total enrollment—all affect school costs. If the percent of the population attending school is high, costs will be high. In many villages to which rural territory is attached it is difficult to get exact population figures. Such is without doubt the situation in some of these villages. This may account for part of the variation in the relation of school attendance to population shown in column 4, which ranges from 13.8 percent to 27 percent. The average, 22.5 percent, is higher than a similar average, 17.5 percent, reported in a similar survey of twenty-two cities in Ohio ranging in population from fifteen thousand to thirty thousand.[1]

The percent the high-school enrollment is of the total enrollment is an important factor in school costs because high-school education is more expensive than elementary. The percents here range from 15 to 30.3, with an average of 22.8 percent. It was suggested in the questionnaire that tuition pupils should not be included in this computation. The average for the earlier study just mentioned was 21.8 percent, slightly less than the average in this study. The industrial conditions in these cities probably tended to keep the percents a little lower than those which obtain in rural districts.

The percent of failures, as presented in Table II, affects school cost, because retarded pupils require a longer period of time to reach certain attainments. These failures range from 1.1 percent for Glouster to 16.6 percent for Gibsonburg, with a general average of 8.3 percent. These figures arouse one's interest in several questions outside of school costs. Why are the percents low in some schools and high in others? Are these discrepancies due to superior average intelligence in some schools or to

[1]Hartzell, Mabel. "Public-School Costs in a Group of Ohio Cities, Data for the School Year, 1922-23," *Educational Research Bulletin*, 3:339-46, November 26, 1924.

differences in standards of achievement required, in teacher-pupil load, in teacher training, or are the differences due to other factors? Gibsonburg was curious about this problem, because recently the Bureau of Special Education of Miami University, under the leadership of Dr. Wallin, made a survey of the situation

constitutes about 8 percent of the enrollment of the first six grades, it is easy to see why the percent of failures for the first eight grades in this village is 16.6. The average of failures in this study is a little below the average, 9.9 percent, for the twenty-two cities before mentioned.

TABLE I. ENROLLMENT FACTORS WHICH INFLUENCE SCHOOL COSTS

Names of Ohio Villages	School Enumeration	Average Daily Attendance	Percent Attendance Is of Population	Percent High-School Enrollment Is of Total Enrollment
(1)	(2)	(3)	(4)	(5)
Archbold	237	291	24	19
Clyde	944	819	20.5	24.7
Fayette	200	175	14.7	20
Garrettsville	280	257	25.2	30
Green Springs	375	350	25	29
Glouster	915	787	24	23
Gibsonburg	498	466	24	21.4
Huron	403	388	22.8	18.3
Jefferson	387	342	22.3	30.3
Lowellville	685	691	27	15
Maumee	1,000	721	23.7	17.1
Millersburg	735	637	21	21
North Baltimore	715	578	23.6	26
Oak Harbor	475	460	25	27
Tippecanoe City	457	474	19	23
Versailles	296	327	13.8	*
Vermilion	*	400	*	26
Wellington	577	567	27	29
Average			22.5	22.8

* These items were not given by those reporting.

there, testing both physically and mentally twenty-three of the most backward children from grades I to VI. As a result the investigators found that all of these children should be in either a special or an ungraded class where they would receive a different type of instruction from that which they now receive in the regular grades. Since this number

The percent that the graduates are of the total high-school enrollment will affect school costs. The school with the best holding power will probably spend more money. The average for the group, 18.1 percent, is considerably more than that of the twenty-two cities which had an average of 12.98 percent.

The percents of teachers with two years or more of normal training extend from 0 to 100, according to column 2 of Table III. The average for these eighteen villages is 44 percent in contrast to the 41.3 percent for the twenty-two cities of the earlier study. This table also shows the pupil-teacher ratio in both elementary and secondary schools. Other things being equal the smaller the size of the classes the larger the number of teachers that must be employed and consequently the higher the cost. Village schools as a general rule have a higher ratio than cities. This statement is substantiated by the facts in the table where the average for the elementary grades is 36 and for the high schools is 23.7. The corresponding figures for the twenty-two cities were 30.4 and 20, respectively.

Thus far the items affecting school costs lie within the system itself. The remainder of the discussion concerns those factors which determine school costs and which lie outside the school.

Table II. Ratio of Failures and Graduates

Names of Villages	Percent Failures Are of Elementary Enrollment	Percent Graduates Are of Total H. S. Enrollment
(1)	(2)	(3)
Archbold	12	8.3
Clyde	0	17.1
Fayette	3.5	17
Garrettsville	7.9	25
Green Springs	8	19
Glouster	1.1	20
Gibsonburg	16.6	18
Huron	15.6	10
Jefferson	4.6	23.6
Lowellville	19	18
Maumee	7.6	13.8
Millersburg	5	22.5
North Baltimore	9.3	20.7
Oak Harbor	8	17
Tippecanoe City	8	14
Versailles	4.8	21
Vermilion	....	21
Wellington	5	20
Average	8.3	18.1

Table III. Facts Regarding Teacher Training and Pupil-Teacher Ratio

Names of Villages	Percent of Elementary Teachers with Two Years or More of Normal Training	Pupil-Teacher Ratio	
		Elementary	High School
(1)	(2)	(3)	(4)
Archbold	25	30	25
Clyde	25	40	24
Fayette	100	37	16
Garrettsville	100	32	23
Green Springs	30	38	25
Glouster	0	48	32
Gibsonburg	25	44	23
Huron	44	40	17
Jefferson	25	32	25.6
Lowellville	90	44	22
Maumee	58	22.5	17.3
Millersburg	60	34	25
North Baltimore	23	36	27
Oak Harbor	0	35	23
Tippecanoe City	33.3	40	28
Versailles	12.5	20	31.5
Vermilion	37	36	23
Wellington	100	40	21
Average	44	36	23.7

The majority of people will admit that the outstanding factor is the actual wealth upon which the levy for school support may be made. Too often in Ohio the levy is not based upon actual wealth but upon a highly variable assessed valuation. Even if the assessed wealth were the actual wealth there would still be great variation among the villages under consideration.

Table IV shows that the wealth per pupil in average daily attendance varies from $2,542 for Glouster, a southern Ohio village, to $13,531 for Huron, a northern Ohio village. It is quite obvious which village can afford to spend more upon the education of its communities are exerting to support their schools. Cost per pupil in average daily attendance probably in all cases includes capital outlay and payment of debts. Some may object to its being included in this item. It seems logical, however, to include it if one is to

TABLE IV. RATIO PER PUPIL EXPENDITURE TO PER PUPIL ASSESSED WEALTH

Names of Villages	Wealth per Pupil in Average Daily Attendance	Cost per Pupil in Average Daily Attendance	Total Tax Rate	Percent School Tax Is of Total Rate	School District Indebtedness per $1,000 of Wealth	Debt per Pupil in Average Daily Attendance	Money Spent for Health Instruction
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Archbold	$ 6,612	$ †	18.8	33.	$ 0.	$ 0.	$ 0.
Clyde	10,580	54.94	19.8	28.5	11.6	124.00	0.
Fayette	5,000	88.62	18.2	38.4	0.	0.	0.
Garrettsville	8,175	82.00	22.	31.8	1.25	11.70	150.*
Green Springs	10,000	85.00	18.	28.	0.	0.	†
Glouster	2,542	50.00	23.6	40.	15.00	40.00	0.
Gibsonburg	7,000	56.00	18.2	35.	2.48	15.00	55.*
Huron	13,531	91.00	17.7	36.	8.95	121.00	0.
Jefferson	8,063	86.31	22.4	30.6	19.97	161.00	†
Lowellville	9,000	83.00	22.	29.	†	24.00	0.
Maumee	7,461	72.36	22.6	33.	†	194.00	0.
Millersburg	8,791	†	20.8	50.	†	†	†
North Baltimore	10,034	73.00	17.	33.	5.00	49.00	180.
Oak Harbor	6,740	†	†	†	9.67	65.00	283.*
Tippecanoe City	7,173	77.00	20.3	49.	27.00	198.00	75.
Versailles	11,300	†	26.4	52.2	25.60	115.80	0.
Vermilion	10,935	75.00	23.6	30.	.70	7.50	200.
Wellington	11,460	102.90	19.	39.	12.00	135.00	0.
Average	$ 8,610	$ 76.13	20.6	36.2	$10.00	$ 74.28	.....

* Money came from outside source and was not appropriated by the Board of Education.
† No information given by those reporting.

youth, but this hardly looks like the equalization of educational opportunity. Other items of this table—cost per pupil in average daily attendance, tax rate, debt per pupil in average daily attendance, debt per $1,000 of wealth—all show considerable variation, and indicate the effort that the various measure the support a community is giving to its schools. The variation in the table extends from $50 to $102 with the average $76.13. The average for the twenty-two cities was $83.33.

The percent the school tax is of the total tax is an indication of how much interest those in charge of the dis-

tribution of funds have in the school. Sometimes municipal interests—street paving, lights, sewers—get a major portion. However with the present tax-limitation laws now in effect in Ohio there is likely to be an equitable distribution of funds, neither school nor municipality getting all it wants. The last item in this table indicates that little money is being spent specifically for health instruction. Most schools that have spent any at all, have received it from sources outside appropriations made by boards of education.

It is hoped that the few facts reported in this brief survey will be of some help to the villages of Ohio. Any one from a village not represented may find it worth while to compute similar data for his own system and make comparisons. Whether one's figures may be interpreted as good or bad, better or worse, must be decided in terms of all the factors affecting the local situation.

THE AMOUNT OF TIME REQUIRED PER STUDENT IN PRACTICE IN TEACHING

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IT is barely possible that the next move in education will be the publication of "little blue book" editions—pocket-size, designed especially for street-car use—of the textbooks now in use. At least this thought occurs when one makes a study of the amount of time required in travel for student-teachers who do their practice teaching in situations where university high schools have not been established.

The following figures were collected during the Fall Quarter of 1925 at the Ohio State University by the supervisors in charge of the practice teachers in secondary education.[1] These students taught in the senior and junior high schools in Columbus, from October 7 to December 18, a period slightly in excess of ten weeks. They were registered in the required curriculum for secondary teachers in the College of Education and, at the same time, were qualifying for provisional high-school certificates in Ohio. Their assignments for practice teaching were made by the Department of Principles of Education through the offices of the Superintendent of Schools. In assigning each practice teacher to a class and school the following items were considered; the student's university schedule other than practice teaching, the subject, grade, and time schedule within the high school, and the student's place of residence. From the standpoint of saving time, the last item, as we shall see, is especially important.

In all, 69 students reported. They are divided into three groups according to the supervisor to whom they were responsible. These students reported, in minutes, the amount of time spent with their classes, in travel to and from the high school, and in preparation, conferences, and in correcting papers.[2] Two of these groups also reported, in minutes, the amount of time required to make observations of classes other than the ones they were assigned to teach. These reports were handed in by the student at the end of each week.

[1] The material for this report was collected by E. W. Pahlow, H. B. Alberty, and H. G. Hullfish, at the suggestion of Dr. Pahlow.

[2] Although this study was actually suggested by an article by J. W. Groves, "The Amount of Time Student-Teachers Spent in Practice in Teaching," *Educational Administration and Supervision*, 11:417-20, September, 1925, no attempt was made in this, as was done in the above study, to compare the time spent in this course with that required by other courses, or by other regular activities of the student.

The figures reported here represent the totals for the entire period, 10.6 weeks. Thus we may see, in Table I, the total time required by the student-teacher in meeting her class, getting to and from the building, making the necessary preparation, and taking care of the other details involved in teaching.

One notices at once, of course, that more time (12.16 hours) is required, on the average, for travel than for actual contact with the class. In the case of Group III only, was less time spent in travel than in teaching, and this was occasioned by the fact that four out of the six schools represented in this group were located in the same end of the city as the University—one of them within two blocks of the campus.

TABLE I. TIME REQUIRED IN TEACHING, TRAVEL, AND PREPARATION BY THE SIXTY-NINE STUDENTS REPORTING

	Number of Students	Minutes Spent with Class	Minutes Spent in Travel to and from Class	Minutes Spent in Preparation, Conferences, Correcting Papers
(1)	(2)	(3)	(4)	(5)
Group I...	18	38,654	62,013	71,525
Group II..	23	49,003	79,590	96,270
Group III..	28	59,185	55,560	111,418
Total...	69	146,842	197,163	279,213
Average	.....	2,128.14	2,857.43	4,046.56
Average hours..	.....	35.46	47.62	67.44

Since the schools to which the practice teachers were assigned are scattered throughout the city, it is interesting to note the contrast between time spent in travel by students assigned to schools near the campus and by students placed in more distant schools. This is shown in Table II in terms of hours.

We might include schools which are farther away from the campus than West High School—the one described in Table II as "Sixty minutes by street car from the campus." But sufficient cases are reported here to show that there is a marked difference in the amount of time spent in travel by the various students.

The differences, however, are hardly as great as they appear. In Table II we reported five students at West High School (Sixty minutes by street car, etc.), four of whom spent, respectively, 53.7, 54.3, 56.0, and 57.7 hours in travel,

TABLE II. DIFFERENCES IN TRAVEL-TIME REQUIREMENT ACCORDING TO LOCATION OF SCHOOL

	Hours Spent in Travel
(1)	(2)
Within two blocks of the campus:	
Student 1.....	7.6
Student 2.....	16.3
Student 3.....	16.5
Within twelve blocks of the campus:	
Student 4.....	12.1
Student 5.....	12.7
Student 6.....	16.0
Sixty minutes by street car from campus:	
Student 7.....	53.7
Student 8.....	54.3
Student 9.....	56.0
Student 10.....	57.7
Student 11.....	80.0

whereas the fifth one required 80.0 hours to get to and from the class. The difference here, approximately 25 hours more than the average of the other four students, may be accounted for by the fact that the first four student-teachers lived within ten minutes of West High School and taught there the first period in the morning. The fifth student-teacher, on the other hand, lived near the University. Actually, in getting to the University for their other courses, the four students traveled quite as

much as the fifth one each day, but this was not time required for this one course alone. The manner in which assignment according to place of residence serves to cut down on the travel-time required for the practice teacher may be seen most readily by reference to the report of a sixth student who was also located at this same building. This teacher, teaching at, and living near West High School, reported her travel-time as "from the campus and back," and her total was, as in the case of the fifth practice teacher mentioned above, 80 hours.

Another item of interest, at least to the supervisor who is responsible for a large group of practice teachers, is the report by the students on the relative amount of time spent in observing and in teaching their classes. These students are supposedly ready to take charge of the classes when their assignments are made, though they are gradually introduced to the work. The first days are spent in arranging seating charts, taking the roll, reporting absences and tardiness, correcting papers, making assignments, handling board work, and holding individual conferences where necessary. Table III (time given in minutes) shows this distribution for Group I.

Table III. Distribution of Total Teaching Time According to Time Spent in Observation and in Teaching

Student	Observing Class	Teaching Class
(1)	(2)	(3)
1.	130	2,093
2.	374	1,786
3.	246	1,763
4.	135	1,755
5.	135	2,115
6.	365	1,795
7.	234	1,878
8.	270	1,845
9.	545	1,705
10.	210	2,040
11.	308	1,848
12.	355	1,895
13.	145	2,015
14.	135	2,070
15.	180	2,070
16.	384	1,683
17.	165	1,855
18.	275	1,850
Total	4,591	34,063
Average	255.05	1,892.38
Median*	240	1,852.5

*Secured by averaging the two middle measures.

Assuming that the above averages represent the approximate time that a student in this system should spend on these different phases of the work, then obviously Number 9, and apparently Numbers 2, 6, 12, and 16, gave too much time to observation of the director of practice, that is, the regular teacher in charge of the class. They gave too much time, provided there was no acceptable reason for their change in status from teacher to pupil. This fact is even more marked when the median is examined. In the case of the practice teacher listed above as Number 9, the reason for so much observation of the regular teacher's work proved to be nothing more than the over-careful attitude of the director of practice. Although this practice teacher was an outstanding member of the group, the regular teacher was loath to give her full responsibility for the conduct of the class. In other cases, other causes were present. At any rate, these time cards, which were turned in each week, gave the supervisor a ready check on an item that might otherwise have escaped his notice.

A distribution of all students in Groups I, II, and III, according to subjects taught, with a view to determining the time required in preparation, is at least interesting, if not illuminating. There is just a hint here, since the number of cases reported for most of the subjects is so small as to be almost

meaningless, that the modern languages do not demand so much time for preparation as do the other subjects, though the one student reporting in chemistry returned a figure even lower than one of the language groups. Differences in classes and differences in student teachers make these figures even more unreliable.

TABLE IV. TIME REQUIREMENT BY SUBJECTS

Subject Taught	Number of Students in Group	Average Minutes Spent in Preparation
(1)	(2)	(3)
History	23	4,185
English	18	4,462
Mathematics	8	3,815
French	8	2,981
Latin	4	4,272
Biology	3	4,436
Spanish	2	2,610
General science	1	6,300
Chemistry	1	2,700
Shorthand	1	3,410

TABLE V. TIME REQUIREMENT FOR MAKING EIGHTEEN OBSERVATIONS

	Number of Students	Minutes Spent	
		Observing	In Travel*
Group I	18	15,217	7,340
Group III	28	22,166	12,730
Total	46	37,383	20,570
Average		813	447
Average hours		13.5	7.5

*One notices at once, of course, that the travel time here is not nearly so great as in the case of getting to and from the class that the student-teacher is responsible for. This is due to the fact that many of the observations were made in the same building where the class was taught, in which case the travel time was reported for the teaching only; and also to the fact that two or three observations were made on the same day in one building.

In this course, in order to meet the requirements of the State Department, it is necessary that the student-teacher make eighteen observations of classes other than the one which she teaches. For Groups I and III a record was also made of the time required for this phase of the course. This was reported as "Minutes spent observing" and "Minutes spent in travel." The report is shown in Table V.

This of itself seems to be no especial burden, but when it is added in a Quarter's work to the time which the rest of the course requires, the load, already quite heavy for a five-hour course, is greatly increased. We may see this most readily by combining the time spent in teaching with the time spent in making the added observations. This is shown in Table VI for Groups I and III.

TABLE VI. TIME REQUIREMENT FOR TEACHING AND OBSERVING, AND FOR NECESSARY TRAVEL

	Group I (18 students)	Group III (28 students)	Both Groups (46 students)
(1)	(2)	(3)	(4)
Minutes spent in contact with classes:			
With own class	38,634	59,185	97,839
Observing other classes	15,217	22,166	37,383
Total	53,871	81,351	135,222
Average (minutes)	2,993	2,905	2,940
Average (hours)	49.9	48.4	49.1
Minutes spent in travel:			
To and from own class	62,013	55,560	117,573
To and from observations	7,840	12,730	20,570
Total	69,853	68,290	138,143
Average (minutes)	3,881	2,439	3,003
Average (hours)	64.7	40.6	50.1

This makes a total of "off campus" time required, on the average, of 99.1 hours. This is, however, but an incomplete expression of the time demanded by the course. Table VII is designed

to show the total time required, on the average, of the student in the practice-teaching course. It also shows the percent of the total time which each phase of the course requires. As in the preceding table, these figures are based on the returns from Groups I and III.

We may understand more clearly just what this load of 153.9 hours means to the student if we compare it with the theoretical maximum of time required per credit hour for a course of equal credit, five hours over a similar period of time. That is, we may assume, as is usually done, that each credit hour of lecture or quiz demands two hours of preparation. For a five-hour course this means fifteen hours of study and recitation each week. Over a similar period as the one reported in this study, 10.6 weeks, a total of 159 hours would be required. Table V compares the actual requirement of the practice in teaching course with this theoretical maximum.

Table VII. Time and Percent of Total Time Spent on the Different Activities of the Course

Activity	Hours Required	Percent of Total Time
Average time spent in contact with classes, with own class and in observing other classes	49.0	31.9
Average time spent in travel, to and from own class and to and from other classes observed	50.1	32.5
Average time spent in preparation, correcting papers, conferences, etc.	39.8*	25.9
Average time spent in group meetings on campus, and in individual conferences with supervisor	15.0	9.7
Average total time required by course	153.9	100.0

*This figure would more nearly approach those of "time in contact with class" and "time in travel" if the latter did not include the travel time required in making the 18 observations referred to previously. We are here interested in getting the total time requirement of the course. We therefore include here the figures for each phase of the work.

In summarizing we perhaps need to state certain perfectly obvious conclusions. In the first place, the time requirement very nearly approaches the theoretical maximum, which means that "practice in teaching" may be considered a "heavy" course. In the second place, it is quite evident that too much time is spent in travel, and that in comparison with the other time requirements, not enough time is devoted to preparation.

Table VIII. Comparison between the Theoretical Maximum Requirement for a Five-Hour Course and the Actual Time Demand of Practice in Teaching

Course	Hours Required over a Period of 10.6 Weeks	Hours Required per Week
Time required, theoretically, by a course of equal credit hours—namely, five	159.00	15.00
Actual time required in the practice in teaching course	153.81	14.51
Time demanded by the theoretical maximum over and above the actual requirement of the practice in teaching course	5.19	.49

This may mean that preparation is skimped because of the heavy demand on time for travel. It is certainly clear that if we had a university high school in which provision were made for this course, we could save the student many hours of travel—hours which are probably largely wasted. And finally, it is self-evident, when the situation is such as we have referred to in this paper, that the interests of the students must be well guarded when the practice-teaching assignments are made. To neglect this would be to make a difficult situation quite impossible.

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REMEDIAL WORK

EDUCATIONAL or achievement tests are rapidly nearing the close of their second decade. The early tests and scales of Stone, Ayres, Thorndike, and Courtis have been succeeded by a veritable multitude until at present one publishing company alone lists more than four hundred titles in its catalogue. At first many of us used these tests because we were curious to know how our schools or classes compared with the standards or norms given with the test. We were well pleased with the result if our pupils averaged better than the standard. The test complimented us and proved our wisdom and teaching efficiency. On the other hand, if the results of the test showed our pupils below standard, too often we were dissatisfied with the test. We were unwilling to admit that the fault might lie in ourselves.

Gradually, however, we came to recognize that low results meant an unsatisfactory learning situation. It might be materials of instruction, it might be method, it might be teacher or administrative situation. Whatever the cause, there was need for a remedy and the cause needed to be found in order that the right remedy might be applied.

A recognition of this need and a desire to do something about it have brought research into the schoolroom, and the last few years have found an ever increasing number of teachers and principals varying existing conditions and attempting remedial work.

But all change is not progress and blind change which finds its justification in subjective evaluation is quite likely to be of little worth. Consequently if remedial work is to be truly remedial, certain safeguards must be taken. These safeguards are as simple as A B C's to the trained research worker but are frequently no more familiar than the Greek alphabet to many who are attempting remedial work.

In order to evaluate remedial work, controlled experimentation should be carried on which involves at least three steps: (1) the careful measurement of the skill, knowledge, or ability which we wish to improve; (2) the setting up of a learning or teaching process which in theory, at least, will improve this skill, knowledge or ability; and (3) a remeasurement at the end of the experiment to check the results. Here again errors frequently creep in. The results of many an experiment have been vitiated because of an inadequate measure of initial ability. The test was too brief and did not sufficiently safeguard against chance answers. It was too general and hence only applied in part to the specific situation which we wished to remedy. It may have been the wrong measure because while measuring in a very satisfactory manner skills or abilities closely related to the one which we wished to improve, it did not cover adequately this specific ability. All these things must be given particular attention if the experiment is to be initiated correctly. Again the teaching procedure may not directly affect the skill, knowledge, or ability which we wish to improve. In many cases the difficulty has not been analyzed sufficiently to isolate the difficulty. A third error frequently occurs in final measurement. It is too often assumed that two forms of the same test are as identical in

their measuring ability as two footrules made by the same machine.

All these things tend to make uncertain the results secured by the remedial work. Due to these errors, the final measurement may show little or no improvement even though real improvement has taken place, or it may show large improvement when little or none has taken place. These facts are especially significant when two methods of teaching are compared. A good method may be discredited or a poor one commended because of error in the experimentation. Another source of error which frequently appears in the comparison of methods is a failure to follow accurately and completely one or the other method as it has been set up. A criticism of a method which has not been accurately followed is manifestly unfair, whether that criticism is praise or blame.

This warning is sounded not to discourage experimentation and remedial work but rather to encourage truly scientific investigation. The more familiar our teachers become with the criteria of scientific experimentation, the greater will be the progress which we may expect in this field. The responsibility rests heavily on supervisors and principals. One of the duties which they owe to their teachers is guidance in the use of standardized tests to discover where remedial work needs to be done. To analyze a situation and isolate the specific elements which need improvement often calls for a breadth of training and range of experience which the classroom teacher has not had. The teacher should naturally look to her principal and supervisor for definite assistance in this work. The latter should direct the arrangement of experiments bearing directly upon the weakness revealed and should be kindly critical of remedial procedure and the measures of its effectiveness. Such procedure makes for better trained teachers, more efficient teaching, more definite learning, and progress in scientific education.

E. J. A.

DIFFERENTIATION OF FRESHMAN ENGLISH FOR GROUPS OF DIFFERENT ABILITIES

R. O. Billett
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Many classroom problems may be reduced to problems of individual differences. To teach the class and reach the pupil seems to be the *ultima Thule* of education. Within the extent of the writer's limited experience educational magazines have devoted considerable space to the exposition of plans and devices for reaching the pupil through class instruction. The Batavia Plan, the Cambridge Plan, the Winnetka Plan, the Pueblo Plan, the Dalton Plan, the supervised-study plan, and many other plans are but evidences of the effort being made to do something about individual differences.

All these plans, methods, and kindred devices tend to arrange themselves in two categories, the individualization of instruction and homogeneous grouping. The right to prophesy which, if either, of these two methods will ultimately prevail is reserved for those better qualified to prophesy. To an ordinary public-school man homogeneous grouping seems preferable at present. He who would completely individualize instruction must be prepared to write all his

own texts, or to have them written, as Washburne is doing in the grades at Winnetka on the "project" or "contract" plan. Because of the lack of texts built for the individualization of instruction, this plan is at present impracticable. Homogeneous grouping, however, is practicable and is a step toward future complete individualization of instruction.

Some educational Rip Van Winkles feel that the hustle of modern education is much ado about nothing. Why become involved in the administrative difficulties of homogeneous grouping? Are there not sufficient difficulties when no attention is paid to grouping? These beliefs are right if the personal comfort of the administrator is the prime consideration. They are wrong if the greatest good to the greatest number of pupils is their goal—which incidentally and indirectly may concern the personal comfort of both teacher and administrator. Who has not seen Tom forming undesirable habits while the teacher explains to Dick and drills Harry? How is the teacher to prevent Tom considering Dick a numbskull and Harry a "hopeless boob"? Tom must have a wonderful heredity and home environment if he does not develop a bump of conceited superciliousness. Harry, never succeeding, forms the habit of never trying and will lapse into a consciousness of personal worthlessness. Tom is a somnambulist due for a great awakening when he enters the world in which the forces of social and economic gravity have established homogeneous groupings in which a leader contests with leaders.

The bright pupil in a heterogeneous group loses sportsmanship, because he soon learns he is a sure winner. He loses opportunities for the acquisition of habits and ideals which constitute fine character not the least of which is a proper sense of his own significance and insignificance. The bright pupil needs direction of energy and occasional help. The average pupil needs explanation and drill. The dull pupil needs more explanation and more drill. All pupils need wholesome competition with their equals. No teacher in one and the same recitation period can supply the materials and occasion for the educational activity most profitable for all three types.

The main purpose of the experiment, whose first phases are herein described, was to improve instruction in freshman English at Harvey High School, Painesville, by grouping pupils homogeneously and thus to make possible the differentiation of the materials of the course and of the recitation procedure.

TABLE I. THE RANGE AND AVERAGE INTELLIGENCE QUOTIENTS OF THE FIVE GROUPS

Group	Intelligence-Quotient Range	Average Intelligence Quotient
(1)	(2)	(3)
A (heterogeneous)...	81–131	102
B (heterogeneous)...	75–144	98
C (homogeneous)....	107–132	119
D (homogeneous)....	97–106	102
E (homogeneous)....	71– 96	84

To answer these and similar questions it was thought advisable to organize the September freshman class in English numbering one hundred fifty students, into three homogeneous groups, taken from the lowest, middle, and highest thirds of the class, and two heterogeneous groups for a check or control. The basis of the grouping was the intelligence quotient obtained by means of the Terman Group Test of Mental Ability. To guard against the unreliability of a single group intelligence score, the pupils were given Form A of the Terman Test in the spring of 1924 and Form B after the opening of school in the fall. The intelligence quotients were computed from the data thus

obtained, and the pupils were grouped as a part of the organization work for September, 1924. Contrary to the expectation, that some pupils would vary greatly in the scores made on the two tests, no case of great variation occurred. Many pupils' intelligence quotients were identical on both tests, and few varied more than four points. The average intelligence quotient was accepted as most probable, and few changes were made from one group to another.

The range of intelligence quotients on Form A was from 71 to 144. By inspection it was seen that one-third of the class had intelligence quotients ranging between 71 and 96; one-third, between 97–106; and one-third, between 107–144. These limits were, therefore, used as the limits for the homogeneous groups. The average intelligence quotients for each group are shown in column 3 of Table I. Groups A and B, of practically the same size and the average intelligence quotients, constituted the heterogeneous or check groups. The averages of the three homogeneous groups, C, D, and E, were well spaced, for there was an interval of 18 points between the slow and medium groups and 17 points between the medium and fast groups. All sections are taught by the same teacher.

When the readjustments were complete and the sections were balanced to conform with the condition of the experiment, the following educational tests were given: Briggs English Form Test, Alpha; Charters Language and Grammar Test, Form 1; Inglis Vocabulary Test, Alpha; and Hudelson Composition Scale. These tests were administered by the principal and the teacher in charge of the classes after careful study and preparation. The conditions under which the tests were given were painstakingly controlled. Perfect cooperation on the part of the pupils also contributed to confidence in the reliability of the results. No efforts were spared to make the scoring exact, and the test papers were rechecked by a graduate class taught by Dr. Morrison, at the Ohio State University.[1]

Table II gives mean scores made by each group upon the various tests.

There was considerable overlapping of accomplishment in the three groups. For example, on the Inglis Test the high score for Group E was 69; the low score for Group C was 40. Similarly on the

Table II. Mean Scores on Five English Tests Made by the Different Groups

Section	Type	Tests				
		Inglis Vocabulary	Hudelson Composition	Charters Grammar	Charters Language	Briggs English Form
(1)	(2)	(3)	(4)	(5)	(6)	(7)
A	Check	49.3	4.4	10.6	25	23.4
B	Check	49.4	4.5	10.4	23.1	22.5
C	Fast	70.6	6.4	17.8	32.3	26.0
D	Medium	55	4.7	16.8	27.3	24.6
E	Slow	32.6	2.9	7.3	18.6	20.2
Mean		52.9	4.7	13.3	25.4	23.3

[1]This study was carried on under the direction of Dr. J. Cayce Morrison, Ohio State University.

Briggs Test the high score for Group E was 27; the low score for Group C was 16. Without exception the maximum score of Group C, the brightest homogeneous group, exceeded the maximum score of the other homogeneous groups. Also without exception, the median score of Group C was decidedly above that of Group D, while the median score of Group D was decidedly above the similar score of Group E.

When this problem was first considered it seemed that the differentiation of subject-matter and class procedure would prove exceedingly difficult. The belief was not substantiated. When a skillful teacher—and Miss Schleman who had charge of this work was indeed a skillful teacher—is in charge of homogeneous groups, differentiation of subject-matter and class procedure naturally follows. Much of the differentiation was made from day to day and it proved far more a differentiation of classroom procedure and technique than a differentiation of the course of study. Frequently identical lesson plans served all sections for the day.

The Harvey High School prescribes in the course for the freshman class written composition, and oral language which consists largely of the reports of books read in the prescribed outside reading, the essentials of grammar, and the classics necessary to meet college-entrance requirements. It has been found to be quite possible to cover the minimum essentials for college entrance in the slow group and to enrich the work for the other classes. The grammar work, to which an average of one day per week was assigned, was presented in all groups by the problem method. This was one instance of actual individualization of instruction.[1] Much of the work was done during the class period under the supervision of the teacher. Many pupils, however, did additional work in grammar at home. Each class period was a laboratory period. A definite problem and definite instructions were given the pupil, who was then supplied with drill material. When, in his opinion, he had mastered the problem he asked for an examination. He took his examination in class, and the teacher corrected it while the pupil was present. If the examination was passed with a nearly perfect grade the pupil advanced to the next problem. If not, the pupil drilled more and took the second examination later, for the examinations were standardized in two forms. If any one pupil got too far ahead of his section he was permitted to read outside English or study some

TABLE III. MARKS RECEIVED BY VARIOUS GROUPS ON UNIFORM OBJECTIVE EXAMINATION

Grade	Group A	Group B	Group C	Group D	Group E	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)
A.....	4	3	6	0	0	13
B.....	4	2	13	5	1	25
C.....	7	8	6	11	6	38
D.....	7	5	4	4	7	27
E.....	3	6	0	1	3	13
Total marks...	25	24	29	21	17	116

[1] Hermans' *Essentials of Grammar*, published by Henry Holt and Company was used.

other lesson during the grammar period. Even here the advantages of homogeneous grouping were obvious, since it was desirable that no pupil have a working rate markedly greater or less than the average of the class.

The slow group did not complete as many problems as the other groups. Definiteness of assignment, care in explanation, and thorough drill on essentials were observed in all work with the slow group.

In all types of class work certain characteristics of the different groups were so marked as almost to identify them. The fast group scintillated with wit, insight, and appreciation; discussion was lively; statements were challenged; extempore debates were frequent. The group showed an abundance of energy, and the class period passed with little watching of the clock. The teacher who leads this group efficiently must be capable and alert. The energies of the students must be properly directed and sufficient suitable material must be prepared for them. The medium group was capable, industrious, tractable, acquiescent, and less inclined to challenge statements although discussion was lively. The slow group showed less interest in school work than either of the other groups. These students carried on discussion fairly well, however, with the aid of the teacher. Much time was devoted to explanation and drill in this class.

To repeat, differentiation in these English classes under consideration was much more a differentiation of classroom procedure than a differentiation in the course of study. In composition, of course, much more time was devoted in the slow group to sentence structure and paragraph writing than in the other groups. This left less time for the writing of longer themes and for the study of rhetorical technicalities.[1]

[1]None of the topics in Hitchcock's *High-School English*, the text in composition and rhetoric, was beyond the abilities or outside the needs of any of the groups.

Following are the major points in the teacher's plans for a lesson on *Julius Caesar:*

Groups A and B—heterogeneous

Assignment.—Act I of *Julius Caesar*, Scene 3—advanced work.

Aim.—To help the pupils understand the scheme of the conspirators as shown in Act I.

Procedure.—I. Parts have been assigned for Scene 1. The scene will be dramatized. A summary speech will also be made by one of the pupils.
II. Quotations.
III. Discussion of mythical references and vocabulary.

Group C—homogeneous-fast

Assignment.—Same as Groups A and B.

Aim.—Same as above plus imparting a knowledge of versification, Shakespeare's style, Roman customs.

Procedure.—I. Read "April," by Bliss Carmen. Voluntary comments from the class.
II. Scene I dramatized and a summary speech given.
III. Discussion of new words, mythical references, Roman calendar, versification, Shakespeare's style.
IV. Shakespeare's imagination. (Class had studied "Imagination" a few days previously in composition.)
V. Discussion of the characteristics of the leading persons in the play.
VI. Continue reading.

Group D—homogeneous-medium

Assignment.—Same as Groups A and B.

Aim.—Same as for Group C except versification will be omitted.

Procedure.—I. Scene I dramatized as above and a summary speech given.
II. Review Act I, Scenes 2 and 3.
III. Report on the "Seven Wonders," discussion of myths, and Roman calendar.
IV. Students pick out passages which have been expressed especially well.
V. Continue reading.

Group E—homogeneous-slow

Assignment.—Detailed directions for studying Scene 3.

Aim.—To understand what kind of men Caesar, Cassius, Casca, and Brutus were and the nature of the conspiracy.

Procedure.—I. Scene I dramatized and summary speech given.
II. Discuss the action of Scenes 1 and 2.
III. Discuss characteristics of Caesar, Cassius, Brutus, Casca.
IV. Quote previously assigned passages.
V. Continue reading.

These lesson plans show some differentiation in subject-matter. Only actual

observation of the class work could give an adequate idea of differentiation in the method of dealing with the same subject-matter which homogeneous grouping made possible.

The results reported in Table III were obtained on a uniform objective examination, comprehensive enough to give everyone a fair chance, and it was scored mechanically so that the judgment of the teacher had no part in the scoring. This table shows that one heterogeneous group contributed just as many failures and the other heterogeneous group contributed twice as many failures as did the homogeneous group composed of students from the lowest third. Of course Group E, due to elimination, was considerably smaller than either Group A or B, but the evidence is still in favor of the homogeneous group. Looking at the figures another way, 67 pupils grouped homogeneously furnished 4 failures, while of 49 students grouped heterogeneously 9 failed. The homogeneous groups earned 25 ratings of A or B while the heterogeneous groups earned 13.

From our experiment we found that reliable intelligence quotients were a sufficient basis for the tentative grouping of pupils. The teacher's judgment may later suggest a few changes, but not many. Pupils in homogeneous groups were stimulated to greater activity. They seemed to be accomplishing more and were happier and less restrained in their work than heterogeneous groups. Our teachers of homogeneous groups felt certain that they accomplished much more under this plan of grouping.

All were convinced by observation that homogeneous grouping resulted in greater interest and pupil activity. Furthermore, pupils gained opportunities for leadership and the advantage of participating in discussion, who would never have attained the same in heterogeneous groups, but would have been utterly and eternally discomfited and quelled.

A PROJECT IN ACCELERATION

THIS project has been carried on for the past three years and is to be continued during the present year so that data are now available for three and a half years. During this time more than one hundred pupils have been accelerated, covering the first two years in one year. This project must in no sense be confused with skipping, for practically no part of the work is skipped.

Like any worth-while project, acceleration requires the cooperation of all who come in contact with any part of its development. Fortunately in the present instance, no disturbing or antagonistic element has marred this experiment; the most sympathetic cooperation has been extended by all concerned.

From an editorial by Dr. Buckingham entitled "Enrichment versus Acceleration,"[1] the theory of this experiment was evolved. He concluded that acceleration was enrichment; the only difference was that no new machinery was needed. Any good curriculum, constructed by necessity for the average pupil, will answer as a vehicle for the acceleration of pupils of high intelligence.

The first year's experiment resulted so well that during the following year by a series of acceleration classes throughout the school all pupils of high intelligence were advanced two grades. There were three of these classes and 78 pupils were thus advanced an extra grade. Last year and during the present year the acceleration has been confined to the new pupils entering the first grade by covering the first two years of the prescribed curriculum in one year.

These pupils are not tested or selected until after they have attended school a few weeks so that the intelligence and classification tests may be verified by data furnished by the teacher who has worked with the pupils and observed them with this selection in mind. If

[1] *Educational Research Bulletin*, 2:72–73, March 7, 1923.

there is a difference in the teacher's rating and the test results, additional individual tests are given. There is a correlation of 0.90 between the test results and the teachers' ratings in this project. The tests are designed for group testing, but it will be found that better results are obtained if small groups of not more than ten or twelve are tested at one time. Some slight adjustment of the special subjects such as art and music must be made. The supervisors of these subjects have, however, generously and helpfully aided in carrying on the project.

Some variables must always be considered in this work. Absence of pupils from an accelerated class means more loss to them than to pupils who are absent from the regular classes and also means more work to those engaged in carrying on the project. If the absence is extended it is best to drop the pupil back to a regular class; a whooping cough or scarlet fever quarantine almost always means a drop-back for a pupil in the accelerated class, and any sickness that leaves the child with depleted physical energy does the same. Removal from the district also means, as a rule, that the pupil must go back to regular work. Close cooperation of the parents in guarding the health of the child is a necessity also, that is, seeing that the child gets a proper amount of sleep, right food, and sufficient healthful outdoor play.

The cooperation of the teachers of other grades than the first is necessary to maintain the proper atmosphere and morale for carrying on the project successfully. It should be "sold" to the entire school, indeed to the community, to be highly successful.

The results of this experiment have proved that this work may be profitably and successfully done. The achievement-test records of pupils accelerated in the first year excel those of the regular second-grade pupils at the end of their two years of work. The subsequent records of these accelerated pupils almost invariably place them in the upper half of their classes and a majority of them in the upper quartile.

Many errors have been corrected in working out this project and determining the procedure which is now followed, and no doubt much improvement can still be made. We consider the project reasonably successful and worth while; it now has a regular place in Wells School. It should be said in closing that whatever success may be accorded to this work it has been largely dependent upon the faithful and untiring efforts of Miss Hortense Pierson, the teacher of this group during the time the work has been carried on.

Ford O. Harrison, *Wells School, Canton*

EDUCATIONAL READINGS

Mort, Paul R. *Equalization of Educational Opportunity*, *JER*, 13:90–103, February, 1926.

In this plan for the equalization of educational opportunity throughout a state, the author assumes that a type of education which the citizens of a state will be willing to support can be determined by discovering the kind of opportunity made available in those communities which have practically the same ability to support schools as has the state as a whole. Taking New York State as an example, he discusses the scheme in detail. In a footnote, he says that the 1925 Legislature of New York passed an equalization law based on the plan under discussion, substituting, however, a forty-three-dollar program in place of the seventy-dollar program proposed in the article. School administrators will find this article of interest.

Note.—The abbreviations used in this number are: *JER*, Journal of Educational Research; *ESJ*, Elementary School Journal; *JEP*, Journal of Educational Psychology; *PJE*, Peabody Journal of Education; and *ASBJ*, American School Board Journal.

OBRIEN, F. P. *The Conditional Value of a Longer School Year in One-Teacher Schools, JER*, 13:104–10, February, 1926.

A comparison of the progress in one-teacher schools of children who have attended eight-months and seven-months schools is reported in this article. The progress is judged by the results on a group of standardized tests and by regularity of attendance. Based upon the test scores obtained in this study, the author concludes that "the value of an eight-month over a seven-month school year in the one-teacher elementary schools was not evident except in grades VII and VIII." The pupils generally had a higher attendance ratio in the school with the longer year and made somewhat better scores than those less regular in school attendance; but they were frequently surpassed by pupils having lower attendance ratio. The author's final conclusion is that there is more need for qualitative changes within these schools themselves than there is for a longer school year.

SPAIN, CHARLES L. *A New Definition of the Functions of the Supervisor, ESJ*, 26:498–506, March, 1926.

Mr. Spain outlines three functions of the supervisor as they are being performed in the Detroit schools. These functions are *research*, *training*, and *field work*. After determining new methods through research, the supervisor, on request, renders service to the principals and the teachers who must assume the responsibility for the operation of the new method in the classroom. In his field work the supervisor makes visits to the classroom to gain an idea of conditions in general. All other visits are made on request of the principal. According to the author these functions are given above in the order of their importance.

TOOPS, HERBERT A. *The Status of University Intelligence Tests in 1923–24, JEP*, 17:23–36, 110–24, January and February, 1926.

In order to study the status of university intelligence tests, a questionnaire was sent to 110 colleges and universities throughout the country. Sixty-six colleges reported the official use of intelligence tests. Of the 341 aggregate uses reported, only nineteen were listed for entrance purposes. No college uses tests as the sole basis for admission. The tests are employed in determining dismissal for low scholarship, in encouraging extra effort in case of unmotivated bright students, in finding out the amount of work a student should carry, and in determining probation for low scholarship. In general the longer the test, the higher the results correlate with scholarship. These are only a few of the interesting findings which the author gleaned from the questionnaires.

A briefer questionnaire was sent to fifty Ohio colleges. Of the forty-four institutions replying, nineteen use tests. The uses made of test scores are very much the same in both studies.

MINOR, RUBY. *Improvement in the Technique of Teaching through a Recognition of Principles in Demonstration Teaching, ESJ*, 26:519–23, March, 1926.

How to make demonstration teaching reach the maximum in suggestive help, according to the author, is a problem which invites consideration and experimentation. To use capable classroom teachers is open to the criticism that undue advertising may be given such a teacher and the feeling on the part of observing teachers that the lesson is "staged." If the supervisor does the demonstration teaching the danger of creating an artificial situation and of promoting insincerity in discussion exists. The author suggests remedial measures for the dangers of both types of teaching and cites 43 principles of teaching.

PENDLETON, CHARLES S. *The Content and Method of Subject-Matter Courses in Teachers' Colleges, PJE*, 3:274–92, March, 1926.

The author seeks to differentiate the instruction offered at teachers' colleges from that offered at purely academic institutions, by setting forth fifteen ways in which this may be done. In connection with one of these—namely, the one in which he distinguishes between the "bookish content" of a subject as taught in a teachers' college and as taught in an academic institution—he incorporates two outlines from his own notes used in his classes at Peabody College. The first has to do with the presentation of a "major classic" and the second with a course in composition and language for the elementary school. It is the author's opinion that at present teachers' colleges are too much occupied with the purely cultural side of education and too little with professional efficiency. He says, "Many of them, perhaps most, have not yet carefully analyzed their undertaking and are at present 'muddling along,' partly conscious of their big work, but in many respects half-heartedly imitating the old-line college, and, as a whole combining rather superficially, without integration, purely college endeavors with normal-school job-analysis methods of a very narrow sort."

REEDER, WARD G., AND CONNERS, F. H. *Group Health and Accident Insurance for Teachers, ASBJ*, 72:49–50, March, 1926.

The writers show the need for group health and accident insurance for teachers and the difficulties now encountered by boards of education in the administration of salaries for sick leaves. Two important difficulties from the board's point of view are: (1) the period subsidized is not always coincident with the term of sickness, and (2) some unscrupulous teachers take advantage of sick leave on full pay.

Since other groups of individuals are now being protected by group insurance, the scheme has been tried out sufficiently to show that it can no longer be regarded as an experiment. Cities such as Cincinnati, Indianapolis, and Pittsburgh now have group insurance in operation for teachers. This type of insurance takes care of accidental death, disability, indemnities, and illness. The cost is generally 25 percent less than regular accident insurance. Under such a plan many of the hardships now undergone by teachers when their salaries are cut off would be obviated.

Lincoln, Edward A. *Under-Age Children in the Lower Grades*, *ASBJ*, 72:54, March, 1926.

This article presents objective information concerning the success of pupils admitted to the public school before reaching the legal age of entry. Objective measurements were used to determine what children should be admitted before reaching the legal age, and check-ups were made later to determine whether it was worth while for them to enter at an early age. The children admitted on the basis of group tests not only kept pace with their older companions but actually surpassed them in some instances.

Stout, E. J. *Principles of Practice for School Superintendents*, *ASBJ*, 72:82–84, March, 1926.

There is today a definite tendency to establish codes of ethics for the teaching profession. Mr. Stout reports the development of such a code among the city superintendents of Iowa. A committee of the Iowa State Teachers Association devoted considerable time last November to the construction of the code. The first part consists of general rules and principles upon which there could be ready and general agreement. The second is a group of specified rules of action for discussion and disposal by the members present at the meeting.

The main heads under which the code has been constructed are: (1) self, (2) children, (3) teachers, (4) school board, (5) community, (6) fellow superintendents, (7) profession. The specific rules suggested for action and discussion are: (1) teacher selection, (2) teacher improvement, (3) professional advancement, (4) professional comity.

Most professions other than teaching have had codes of ethics for centuries. The author suggests that it is high time for teachers of the nation and of the world to make a sane and sensible code and live up to it.

Remmers, H. H. and Remmers, Edna M. *Negative Suggestion Effect on True-false Examination Questions*, *JEP*, 17:52-56, January, 1926.

Many inquiries have been leveled at the new type of examinations as contrasted with the old type. One of the new forms which has been especially questioned is the true-false. After completing an experiment to determine whether there is a degree of negative suggestion produced by this type of examination, the authors concluded that with the kind of material and subject used there is no evidence of negative carrying-away from the taking of the true-false test.

IN PAPER COVERS

Donovan, Herman Lee. *A State Elementary Teacher-Training Problem: Kentucky*. Peabody College for Teachers, Nashville, Tennessee, 1925. (George Peabody College for Teachers, Contributions to Education, 95 pp. No. 17.)

The study undertakes to answer the following questions: (1) What has been the history of teacher-training in Kentucky? (2) What is the present status of elementary teachers in Kentucky? (3) What is Kentucky's need for professionally trained elementary teachers, and what facilities does the state have for preparing them? (4) What will it cost Kentucky to employ professionally trained teachers for elementary schools?

Dr. Donovan's monograph is a worth-while contribution and should have considerable influence in the adjustment of the perplexing problem of teacher-training in the South. Students, teachers, and particularly administrators will find the study instructive and interesting.

Odell, Charles W. *Conservation of Intelligence in Illinois High Schools*. Urbana, University of Illinois, 1925. 55 pp. (University of Illinois Bulletin, Vol. XXII, No. 25, Educational Research Bulletin, No. 22)

The relation of intelligence to the educational and vocational choices is investigated in this study. The scores on the Otis Self-Administering Test of Mental Ability for more than twelve hundred public high-school Seniors in Illinois is compared with their replies on an information blank. The purpose of the study is to determine the waste of mental ability which is likely to result from the choice of postgraduate careers which these students are likely to make and which are not in agreement with their intelligence or the needs of society. About one-third of the boys intend to take up engineering, while about sixty percent of the girls plan to teach. The data seem to indicate that many pupils of indifferent mental ability are planning to go to college and prepare for the professions, while others of high intelligence are planning to enter less exacting vocations at once. The chief indication which the author finds in his own study is that there is great need for further educational and vocational guidance in high school.

AYER, FRED C. *Studies in Administrative Research*, Vol. II. Seattle, Washington, Department of Research, Seattle Public Schools, 1925. 148 pp. (Bulletin No. 2)

Four studies are included within this pamphlet: the Organization of Supervision, Penmanship Systems, Promotion and Failures, and Comparative Time Allotments. Under the first topic the author discusses the rise of special supervision and departmental organization in 44 cities of the United States having a population of more than one hundred thousand. He also discusses the supervisory relations of certain administrative positions such as superintendent, assistant superintendent, principals, and supervisors. He then turns to the organization of supervision in Seattle schools.

Under the second topic, a detailed comparative analysis is made of six different systems of handwriting: McMania, Freeman, and Dougherty, Palmer, Rice, and Zaner.

In his discussion of the problem of promotions and failures the author presents data from various school systems which are compared with similar statistics from the Seattle schools. The unreliability of school marks is emphasized and suggestions are made for the development of more uniform methods of promoting pupils.

Time allotments are investigated by a comparison of the relative amount of time devoted to various subjects in each of the eight grades in 49 large cities throughout the United States. The data for the years 1888, 1904, 1914, and 1924 are compared.

BROWNELL, WILLIAM ARTHUR. *A Study of Supervised Study*. Urbana, University of Illinois, 1925. 48 pp. (University of Illinois Bulletin, Vol. XXII, No. 41, Bureau of Educational Research Bulletin, No. 26)

This pamphlet presents a summary of the periodical literature on supervised study in the secondary schools. The report is divided into two general parts, the merits claimed on the basis of opinion and those on the basis of experimentation. The bibliography on which the summary is based is included.

UNITED STATES EMPLOYMENT SERVICE. *Vocational Guidance and Junior Placement*. Prepared by the Industrial Division of the Children's Bureau and the Junior Division of the United States Employment Service, Washington, D. C., Government Printing Office, 1925. 440 pp. (Children's Bureau Publication No. 149)

In the opinion of the Children's Bureau recently a study of the present status of vocational guidance seemed desirable. Questionnaires were, therefore, sent out to all cities having populations of more than ten thousand in an attempt to determine those in which different kinds of vocational-guidance programs had been developed. As a result of this preliminary survey, twelve cities in the country were chosen in which the work was sufficiently advanced or distinctive to justify detailed study. The cities whose systems are described in this report are: Boston, New York, Chicago, Cincinnati, Philadelphia, Pittsburgh, Minneapolis, Seattle, Rochester, Atlanta, Providence, and Oakland.

BOOKS TO READ

MOORE, ANNIE E. *The Primary School: Its Improvement of its Organization and Instruction*. Boston, Houghton Mifflin Company, 1925. 340 pp.

The author's extensive experience as a teacher and supervisor in kindergarten and primary schools and her work as a college teacher of education enable her to discuss a progressive program for the primary school. Teachers, supervisors, and students will find suggestive the author's suggestions regarding the course of study, and her illustrations of progressive school practices. The suggestions for equipment and books given in the appendix are especially valuable.

EDWARDS, A. S. *The Psychology of Elementary Education*. Boston, Houghton Mifflin Company, 1925. 333 pp.

Within the compass of three hundred pages the author here attempts to discuss the general problems of the elementary school. The scope of the book can best be understood by a summary of the table of contents. Part I discusses the nature and conditions of education, taking up such topics as the objectives of education, the hereditary basis, physical basis, and social aspects. Part II, called in general the Psychology of Learning, discusses such psychological topics as habit, learning in general, perception, thinking, memory, and moral education. Within this section two chapters are devoted to the transfer of training and but three to the study of psychology of particular subjects. Part III, entitled Psychology of the Teaching Process, describes methods of teaching. Part IV gives a brief discussion of individual differences and their treatment. Part V mentions certain traditional errors in educational thought. The author, in his attempt to cover so much material, has been compelled to discuss some of the topics in a rather sketchy manner.

WEISS, ALBERT P. *A Theoretical Basis of Human Behavior*. Columbus, R. G. Adams and Company, 1925. 428 pp.

This volume presents an examination of the underlying assumptions and theoretical foundations of psychology as a science. Its postulates are developed on the basis of physical monism; its

treatment is remarkably clear and straightforward. The book is not a textbook of psychology but performs a long needed service to psychology by examining its foundations. The implications for education are definite and far-reaching. The general theme is that man is an adaptive mechanism and that the so-called higher mental activities are merely complex elaborations of electron-proton relationships.

IRION, THEO. W. H. *Comprehensive Difficulties of Ninth-Grade Students in the Study of Literature.* New York, Teachers College, Columbia University, 1925, 116 pp. (Teachers College, Columbia University, Contributions to Education, No. 189)

Literary comprehension is analyzed by Dr. Irion into five elements: (1) word knowledge, (2) knowledge of expression, (3) ability to get specific facts presented, (4) ability to see the main points and grasp the significant conclusions reached by the author, and (5) general information. Using carefully chosen selections from ninth-grade literature, the author devised five tests to cover these elements. The tests were given to 170 ninth-grade pupils in the Evender Childs High School, New York. Many interesting and significant facts are made evident by this study. Space will allow mention of but a few of them. The author finds that literary comprehension varies with the different types of literature, poetry and the drama proving most difficult. Literary comprehension correlates to a considerable degree with intelligence and also with reading comprehension as measured by the Thorndike-McCall Reading Scale. Pupils with an I. Q. of above 100 may study the selections used in the test forms to advantage, while those with an I. Q. below 100 will encounter serious difficulties. Teachers of high-school literature will find much that is interesting and even surprising in the conclusions and pedagogical implications presented by the author.

NEW TESTS

A NON-VERBAL TEST FOR HIGHER MENTAL LEVELS

Since the beginning of attempts to measure general intelligence, numerous workers have faced the problem of rating individuals who are handicapped by lack of ability to use English. Pioneer work in the field of non-verbal tests was done by Healy, Knox, Goddard, Kempf, and Woodworth and Wells. Later efforts by Pintner and Patterson, Porteus, and Young have also contributed to the solution of the problem. In all these cases, however, the fundamental effort has been to provide a means of measuring intelligence on the childhood level.

This monograph[1] presents the results of an attempt to answer the following question: "Is it possible to construct a performance scale that will differentiate not merely within the lower and middle levels but also within a homogeneous group of high-grade adults?" Fourteen tests have been devised which seem to answer the question rather satisfactorily. They are administered by signs and gestures and entirely without the use of language. The series consists of a series forward test by means of a four-bar xylophone; a single cube-piles test; a pictorial association test; a quantitative association test; an arrangement of cube-piles test; painted cube test; series reversed test, using the xylophone apparatus; a geometric association test; a block construction test; a picture analysis test; a reasoning test; a free analogies test, pictorial; a spot pattern test; and a right and left hands test.

Only a careful study of the manual will reveal the remarkable ingenuity which has been exercised in devising the series of tests. Validation of a complete scale has not been made, and a large amount of cooperative effort must be secured before that can be accomplished. Persons who are fundamentally interested in this type of work and are willing to cooperate in the establishment of valid norms should get in touch with Professor C. C. Brigham, Princeton University.

NATIONAL SPELLING SCALE FOR SENIOR HIGH SCHOOLS

In the testing of spelling ability there has always been a conflict between economy of time and social utility. People need to spell only when they

[1] Squires, Paul C. *A Universal Scale of Individual Performance Tests: Examination Manual.* Princeton, New Jersey, Princeton University Press, 1926. 138 pp.

write. Moreover they write to express thoughts. This means that they write in the form of sentences. Accordingly, if the testing of spelling is to conform to the usage of spelling, the pupils should be required to write the spelling words in context. This, however, is time-consuming both at the time the examination is given and when it is scored. Accordingly, most spelling tests call for the writing of words in columns, though it is admitted that this is not entirely satisfactory. Yet those who defend the practice do so not only on the ground that ability in column spelling varies with ability to spell in context, but also on the ground that even when children write whole sentences we have only approximated the conditions under which spelling is normally required.

The National Spelling Scale by John J. Tipton (National Publishing Society, Mountain Lake Park, Maryland) offers an interesting variant. The test blank as it is presented to the pupil contains sentences from each of which a word is omitted, for example, "Rural people are———in thought and action." The directions in the hands of the examiner contain these same sentences including the omitted words, as "Rural people are *independent* in action." The examiner is required to read each sentence and then "pronounce the word that is printed in black letters for the pupil to spell."

This spelling scale is for use in senior high schools. The words were selected according to the agreements of spelling textbooks. They were scaled for difficulty and checked, the lists appearing in a number of existing scales and vocabularies. The scores are converted into spelling ages by the use of the table. The spelling age when divided by the chronological age gives the spelling quotient. The scale appears in two alternative forms, as Test I and Test II.

A REALLY DIAGNOSTIC TEST IN ARITHMETIC

Occasionally one's appreciation of a publication is best described by the word "grateful." Somehow one feels personally indebted to the authors of the "Compass Diagnostic Tests in Arithmetic," for the workmanlike manner in which they have produced this measuring instrument. Of course, diagnosis in testing is a relative term. The extent to which the abilities in a given field are analyzed and measured depends in a large measure upon the penetration of the analyst, yet no one who has done this kind of work feels that he has carried the subdivision to the last detail. Accordingly, the extent of the analysis is a matter of judgment. We feel that the authors of the Compass Tests have exercised good judgment in the extent to which they have carried their analysis. One's first impression is that of completeness. Closer inspection shows that the authors have exercised restraint in preventing the analysis from running wild.

The collection consists of twenty standardized tests. Although each test has a definite unity, most of the tests address themselves to a number of subtopics. The result is that more than 90 of the fundamental aspects of arithmetic are treated. For example, Test I has to do with the addition of whole numbers. Four distinct skills are, however, distinguished—basic addition facts, higher decade addition, column addition, and carrying in column addition. Besides these four parts there is a fifth which concerns itself with the checking of answers.

In connection with the Compass Diagnostic Tests, a remedial program will be provided in the "Economy Remedial Exercises," which are announced for early publication. We feel that when these materials are all available the resources for the teaching of arithmetic will be greatly enriched.